

### **Evaluation of post-operative pain in single incision laparoscopic cholecystectomy**

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#### **Abstract**

**Aim:** Evaluation of post-operative pain in single incision laparoscopic cholecystectomy

**Method:** Patients suffering from symptomatic cholelithiasis were subjected to Single Incision Laparoscopic Cholecystectomy (SILC) Data analyzed included duration of surgery, post-operative pain, For assessment of post-operative pain numeric pain scale scoring system was used and pain scoring done at four hours, twelve hours and twenty-four hours post-operatively.

**Results:** In SILC group numeric pain score four hours after surgery ranged from 3 to 9. Mean pain score for the SILC group is  $4.64 \pm 1.89$ . The numeric pain score following 12 hours of surgery ranged from 1 to 9. Mean score for SILC group is  $2.96 \pm 1.881$ . The numeric pain score following 24 hours of surgery ranged from 1 to 7. Mean score for SILC group is  $1.80 \pm 1.443$ .

**Conclusion:** SILC is superior to other technique post-operative pain as per our study.

**Keywords:** SILC, post-operative pain, SILS

#### **Introduction**

Conventional laparoscopic cholecystectomy is done using four ports. With an effort to minimize the number of ports, single-incision laparoscopic surgery (SILS) has come into practice<sup>1,2</sup>. SILS is a rapidly evolving method that is complementing traditional laparoscopy in selected fields and patients<sup>3,4</sup>. It has also been suggested as a bridge between traditional laparoscopy and natural orifice transluminal endoscopic surgery (NOTES)<sup>5</sup>.

SILC is perhaps the most common SILS procedure, used to treat patients with gall stone disease. It is being considered as no-scar surgery because the incision is placed within the umbilical scar that is not visible<sup>6</sup>. SILC has also shown to have reduced postoperative pain as compared to four-port cholecystectomy in a recent randomized study, although the sample size was small.

#### **Material and methods**

The present prospective study included ultrasonographically proved 25 patients of symptomatic

cholelithiasis posted for elective cholecystectomy. These patients were admitted in Surgical Wards of Indira Gandhi Medical College, Shimla. SILC was performed on 25 patients. The patients were selected randomly. All the patients were subjected to same general anesthesia, antibiotics, perioperative analgesics and intravenous fluids. SILC was done by infra-umbilical incision and conventional LC done by four Trocars Technique.

Patients having following conditions were excluded from the study.

1. Acute Cholecystitis /Pancreatitis.
2. Choledocholithiasis
3. Jaundice /Hypoproteinemia /Malignancy
4. History of Allergy , taking Steroids and Chemotherapy
5. Patients on Oral Contraceptive Pills or pregnant.
6. Patients requiring intra-operative blood transfusion.
7. Conversion of conventional LC to OC.
8. Intra operative injury to adjacent organs/structures.
9. Cholecystoenteric fistulae

### Results

Pain experienced by patients following surgery is compared between two groups using numeric pain rating scale. Patients were asked to score the pain experience by them on scale of 0 to 10, four hours, twelve hours and twenty four hours post-surgery, a higher score signifies greater pain experienced by patient. Both group of patient were given standard NSAIDs (Diclofenac) post-operatively.

In SILC group numeric pain score four hours after surgery ranged from 3 to 9. Mean pain score for the SILC group is  $4.64 \pm 1.89$  . The numeric pain score following 12 hours of surgery ranged from 1 to 9. Mean score for SILC group is  $2.96 \pm 1.881$ . The numeric pain

score following 24 hours of surgery ranged from 1 to 7. Mean score for SILC group is  $1.80 \pm 1.443$ .

Table 1: PAIN

| Score | Pain at 4 hours |    | Pain at 12 hours |    | Pain at 24 hours |    |
|-------|-----------------|----|------------------|----|------------------|----|
|       | n=25            | %  | n=25             | %  | n=25             | %  |
| ≤ 3   | 11              | 44 | 20               | 80 | 9                | 36 |
| 4-6   | 10              | 40 | 3                | 12 | 15               | 60 |
| ≥ 7   | 4               | 16 | 2                | 8  | 1                | 4  |
| Mean  | $4.64 \pm 1.89$ |    | $7.72 \pm 0.843$ |    | $3.80 \pm 1.11$  |    |

### Discussion

Laparoscopic surgery is a well-established alternative to open surgery across disciplines. Although the magnitude of impact varies by procedure, generally the benefits of laparoscopy on postoperative pain, cosmetics, hospital stay, and convalescence are widely recognized. Many surgeons have attempted to reduce the number and size of ports in laparoscopic surgery to decrease parietal trauma and improve cosmetic results, and recently two innovations have been developed: NOTES, which removes transabdominal incisions completely and SILS, which completes laparoscopic procedures by trocars located at one umbilical incision. SILS, however, is not a new concept, and was described as early as 1992 by Pelosi et al. <sup>4</sup> who performed a single-puncture laparoscopic appendectomy. In 1997, Navarra et al. published the first case series of 30 patients who underwent what they described as “one-wound laparoscopic surgery”. In recent years, SILS has been focused upon as a bridge between NOTES and traditional laparoscopic surgery, because NOTES is technically challenging and current instruments need to be further improved. SILS, on the other hand enables the application of a wide range of already existing instruments. The main point for reducing the number of incisions is not only the

cosmetic advantage but also lowered incision risks, morbidity of bleeding, incisional hernia, and organ damage. Cuesta's method employs a horizontal transumbilical incision and two 5-mm ports. The gallbladder is retracted by a single extracorporeal Kirschner wire, which is manipulated within the abdomen by a proprietary device designed by the authors. The gallbladder is removed by connecting the skin bridge between the two ports<sup>5</sup>

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### **Conclusion**

SILC is superior to other technique post-operative pain as per our study.

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